

# 1 VQE results Aer Estimator (With Shots)

(Full Hamiltonian)				Harmonic Oscillator		$\Lambda = 2$		COYBLA Max 10k Iterations			
Ansatz	Tolerance	Shots	Converged runs	Mean iter	VQE min E.	$\sigma_{min}$	$\Delta_{min}$	VQE median E.	$\Delta_{median}$	Exact	Time
RA r1 rl	1e-01	10000	100/100	21	0e+00	0e+00	0e+00	2.7e-03	2.7e-03	0e+00	00h 02m 34s
RA r1 rl	1e-01	10000	100/100	21	0e+00	0e+00	0e+00	2.7e-03	2.7e-03	-	00h 02m 34s
RA r1 rl	1e-02	10000	100/100	32	0e+00	0e+00	0e+00	2.5e-04	2.5e-04	-	00h 03m 35s
RA r1 rl	1e-03	10000	100/100	40	0e+00	0e+00	0e+00	2e-04	2e-04	-	00h 04m 16s
RA r1 rl	1e-04	10000	100/100	50	0e+00	0e+00	0e+00	2.5e-04	2.5e-04	-	00h 05m 14s
RA r1 rl	1e-05	10000	100/100	57	0e+00	0e+00	0e+00	2e-04	2e-04	-	00h 05m 51s
RA r1 rl	1e-06	10000	100/100	65	0e+00	0e+00	0e+00	2e-04	2e-04	-	00h 06m 43s
RA r1 rl	1e-07	10000	100/100	74	0e+00	0e+00	0e+00	1.5e-04	1.5e-04	-	00h 07m 35s
RA r1 rl	1e-08	10000	100/100	80	0e+00	0e+00	0e+00	1e-04	1e-04	-	00h 08m 14s
Ansatz	Tolerance	Shots	Converged runs	Mean iter	VQE min E.	$\sigma_{min}$	$\Delta_{min}$	VQE median E.	$\Delta_{median}$	Exact	Time

Table 1